One year use of Anastrazole improves the Predicted Adult Height of male adolescents with and without associated GH therapy

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INTRODUCTION

- Estrogen is an essential regulator of bone maturation, growth plate fusion, and cessation of longitudinal growth.
- Aromatase inhibitors (AI) block the conversion of androgens to estrogens, and can be used to delay bone maturation in males.
- We sought to determine whether the blockade of estrogen biosynthesis due to the use of the AI Anastrazole increases the Predicted Adult Height (PAH) in boys with short stature with and without associated Growth Hormone (GH) therapy.

PATIENTS & METHODS

- 28 boys with short PAH used oral Anastrazole 1mg/day for one year.
- 18 received GH therapy for GH deficiency or Intrauterine Growth Retardation ("GH" group).
- 10 were diagnosed with Idiopatic Short Stature and did not receive GH ("ØGH" group).
- PAH was calculated based on Bayley/Pinneau formula.
- Clinical parameters were assessed every 3 months, Hormonal data were collected twice a year.
- Statistic Analysys: CI 95%, significance level (p ≤ 0.05)

RESULTS

- The results are summarized in Table 01 and Figure 01.

Table 01 – Comparison between TH, Basal PAH and PAH after 1 year of 1 mg/day oral Anastrazole use.

<table>
<thead>
<tr>
<th>Group</th>
<th>TH (cm)</th>
<th>Basal PAH (cm)</th>
<th>PAH (cm)</th>
<th>p*</th>
<th>PAH - TH</th>
<th>PAH - Basal PAH</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;ØGH&quot;</td>
<td>173.7 ± 4.39</td>
<td>170.62 ± 3.9</td>
<td>176.8 ± 3.09</td>
<td>0.003</td>
<td>+3.1</td>
<td>+ 6.2</td>
</tr>
<tr>
<td>&quot;GH&quot;</td>
<td>171.48 ± 4.48</td>
<td>168.77 ± 4.1</td>
<td>175.11 ± 4.46</td>
<td>&lt;0.001</td>
<td>+3.6</td>
<td>+ 6.3</td>
</tr>
<tr>
<td>Total</td>
<td>172.28 ± 4.50</td>
<td>169.43 ± 4.06</td>
<td>175.71 ± 4.27</td>
<td>&lt;0.001</td>
<td>+3.4</td>
<td>+ 6.3</td>
</tr>
</tbody>
</table>

TH = Target Height; PAH = Predicted Adult Height; "ØGH" = Group that did not receive Growth Hormone; "GH" = Group that received Growth Hormone.

- The medium age at the beginning of treatment was 13,6 years.
  We observed no major side effects.
- After one year of Anastrazole use we observed statistically significant increases in PAH, compared to TH and basal PAH in both group.

The authors have no conflict of interest

CONCLUSIONS

- One year use of Anastrazole in boys with short PAH can improve the PAH in “GH” and “ØGH” groups. The complete follow up until adulthood will determine if this increase in PAH will reflect in better final adult height.

REFERENCES

1 - Shams, K. et al. Outcome analysis of aromatase inhibitor therapy to increase adult height in males with predicted short adult stature and/or rapid pubertal progress: a retrospective chart review. J Pediatr Endocr Met. 27,725-730 (2014)